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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/913,518	04/06/2004	JEAN-PAUL DEBALME	1247-709-3VF	7024
22850	7590	10/07/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			AFTERGUT, JEFF H	
			ART UNIT	PAPER NUMBER
			1733	
DATE MAILED: 10/07/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/913,518

Applicant(s)

DEBALME ET AL.

Examiner

Jeff H. Aftergut

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1 and 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor in view of either one of E.P. 630,735 or Japanese Patent 4-201412 further taken with either one of Schermutzki or U.K. 2,040801 and optionally further taken with Francis Jr. For the same reasons as presented in the Office action dated May 20, 2004.
3. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 2 further taken with Canadian Patent 2,010,285 (newly cited) and the admitted prior art (newly cited).

The references as set forth above in paragraph 2 suggested that one skilled in the art at the time the invention was made would have continuously produced the composite material with the use of a double band press assembly wherein one skilled in the art would have applied both heat and cooling to the composite material while the same was pressed in the double band press assembly. The newly presented claims define a specific press arrangement for use in the operation. To further exemplify that one skilled in the art at the time the invention was made would have incorporated a double band press in the operation, the reference to Canadian Patent '285 is cited.

Canadian Patent '285 suggested the commingled hybrid tow (which included the thermoplastic as a fiber as the matrix material for the composite and reinforcing fibers with a higher melting point therein) was suitable for forming a composite article which

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was subjected to heat and pressure in a double band press to continuously manufacture the same. The reference suggested that one skilled in the art at the time the invention was made would have incorporated both heat and cooling in the press while maintaining pressure upon the composite material in the operation. The applicant is referred to page 4, lines 6-13 and page 4, lines 18-29. the reference suggested the overall operation for forming the composite would have taken place in a double band press, however there is still no evidence that one would have provided a roller pair and the entrance to the double band press which were heated and a roller pair at the exit to the double band press which were cooled.

The admitted prior art suggested that the use of a double band press with a heated roller pair at the entrance to the press and a cooled roller pair at the exit of the press was known at the time the invention was made. Applicant is more specifically referred to page 10 of the specification (the originally filed specification at page 10, at page 10 of the substitute specification as well):

"Thus heated, the sandwich then enters a press 31 of a known type, for example such as that described in patent US-A-4 277 531.

This press essentially includes two belts 32 and 33, driven respectively by rolls 34, 35 in the case of the first one and 36 and 37 in the case of the second one. The rolls 34 and 36 are heated; the rolls 35 and 37 are cooled. It also includes, between these two pairs of rolls, two zones in which the sandwich is compressed on its faces and is driven. In the first zone 38 the means for pressing contribute to the heating of the sandwich to a temperature which is higher than the melting temperature of the thermoplastic organic material, in the second zone 39 the means of pressing perform a cooling function which is supplemented by the action of the rolls 35 and 37." (emphasis added)

The applicant has therefore admitted that the known double band press of the prior art included not only a heating a cooling zone within the double band press but

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also that the known press arrangement would have also included a heated roller pair prior to the heating zone and a cooled roller pair at the exit of the double band press. As it was well known at the time the invention was made to incorporate a press which included a double band press arrangement as established above in paragraph 2 and as further evidenced by Canadian Patent 2,010,285, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the conventional press arrangement of the admitted prior art to form the composite material according to the operation as set forth above in paragraph 2 for manufacturing a void free composite article on a continuous basis.

Response to Arguments

4. Applicant's arguments with respect to claims 1 and 5-17 have been considered but are moot in view of the new ground(s) of rejection.

The applicant essentially addresses the reference to O'Connor and expresses that there is no reason to look to the art of forming the composite material on a continuous basis therein as all the examples of the reference appear to suggest that the materials which were subjected to heat and pressure were discrete pieces of material and not continuous length materials. It is agreed that O'Connor failed to teach that the layers were disposed upon a conveyor in the manner claimed. Applicant is advised that the treatment suggested by the reference to O'Connor was one which included the application of heat and pressure followed by cooling under pressure but it did not expressly state that this was limited to batch discrete lengths of material. One of ordinary skill in the art would have been motivated to practice the invention in a

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continuous manner to continuously produce the composite material wherein the application of heat and cooling under pressure would have been understood to have taken place as a continuous operation. Merely because the express example of the invention are discrete lengths of material does not mean that O'Connor is limited to only production of discrete length product in a batch operation. In fact, one skilled in the art would have expected the operation to have been tested in a batch operation initially and that the use of a continuous operation in O'Connor would have been understood to have been useful where one skilled in the art at the time the invention was made desired to continuously manufacture the composite material.

Regarding the inclusion of Kent (E.P. '735), applicant is advised that the reference was not cited to show how one skilled in the art would have consolidated the material with heat and pressure followed by cooling under pressure, rather the reference was cited to show that those skilled in the art at the time the invention was made would have known that it would have been desirable to produce a void free composite in the operation of O'Connor. Likewise, the reference to Nemoto et al (Japanese Patent 4-201412) suggested that one skilled in the art would have desired to produce a void free product wherein one heated a composite material included commingled matrix fibers which were thermoplastic material for manufacturing the composite article. While Kent may suggest different fiber lay up as well as different arrangements of the fiber thermoplastic matrix, and Nemoto et al may fail to teach the use of two heating steps and two cooling operations, the references were not cited for these purposes but rather to support the statement that in O'Connor one skilled in the

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art would have understood that the finished assembly would have been void free. The applicant is advised that one cannot show non-obviousness by attacking references individually where combinations have been made. Additionally, applicant is advised that those skilled in the art would have desired to manufacture a void free assembly (as formation of the same was a known desirable end product in composite article manufacture). The references to Kent and Nemoto were only cited to evidence that one skilled in the art at the time the invention was made would have known how to make the composite of O'Connor void free with the proper application of heat and cooling under pressure and that such would have been performed in the treatment step of O'Connor to make the finished composite.

Regarding the references to Schermutzki and Baumann (U.K. '801), these references were cited to show that one skilled in the art of composite manufacture would have known to employ a double band press arrangement for application of heat and pressure wherein the layers were fed on a conveyor belt in the operation to continuously form a composite material and wherein the double band press assembly included pressing means as well as heating and cooling zones within the press assembly. Note that O'Connor suggested that one skilled in the art would have utilized a press for the treatment of the composite material wherein one heated and cooled the assembly under pressure. The references to Schermutzki and Baumann just evidence the conventionally known press assemblies available to those skilled in the art for practicing the operation of O'Connor wherein the materials would have been disposed upon a conveyor in the operation (one of the belts of the double band press is clearly a

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conveyor arrangement). Additionally, as noted above one skilled in the art at the time the invention was made would have desired to continuously manufacture the composites as such was desired to increase output of the material and increase productivity. To utilize the arrangements of either one of Schermutzki and Baumann to provide for the application of heat and cooling under pressure in a continuous manner would have been obvious as the reference to O'Connor suggested such systems (heat and cooling with pressure application) for the composite manufacture therein. To make the composite continuously would have been within the purview of the ordinary artisan with only the expected result of increase in productivity.

The applicant is advised that while the references to Schermutzki and Baumann do not expressly teach the specific double band press arrangement as defined in newly presented claims 15-17, they need not teach the same as such was newly presented by applicant. The newly cited reference to Canadian Patent '285 was cited to provide further evidence that one skilled in the art at the time the invention was made would have selected a double band press arrangement for forming composite material continuously wherein the matrix for the composite was suitably introduced in the form of thermoplastic fibers (which is what O'Connor employed). Additionally, the admitted prior art suggested that the known arrangement for the double band press included the use of the pair of preheating rollers and the pair of cooling rollers. As such, the admitted prior art suggested that the double band press of claims 15-17 was known per se (it just is not clear whether one skilled in the art at the time the invention was made would have known to utilize the same to consolidate a composite material which was formed from

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thermoplastic fibers and reinforcing fibers). The references to Schermutzki, Baumann, and Canadian Patent '285 all suggested one skilled in the art would have utilized a double band press arrangement for consolidation of thermoplastic fibers with reinforcing fibers and to do so with a conventional double band press (of the admitted prior art) would have been within the skill level of the ordinary artisan.

Regarding Francis, the reference is was cited to show that those skilled in the art when consolidating thermoplastic and reinforcing fibers in a composite article manufacture would have known to employ conveyors to feed the material to a double band press assembly where heat and pressure and cooling were applied to the assembly. While the reference may be making a different end product, it nonetheless suggested that continuous manufacture would have been known to those skilled in the art and that it would have been possible to process the materials defined by O'Connor on a continuous basis. The use of the consolidating presses of Schermutzki or Baumann in O'Connor would have been obvious and additionally the amount of pressure applied in the operation would have been suitable to produce a void free end product as envisioned by either one of Kent or Nemoto et al.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jeff H. Aftergut
Primary Examiner
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JHA

October 4, 2004